1-12. (CANCELED)

13. (NEW) A method for determining the torque on transmission shafts, the method comprising the steps of:

cyclically measuring a rotational speed of a first gear shaft (2, 19) and a rotational speed of a second gear shaft (3, 22) of transmission with a constant transmission ratio, a first torque being present on the first gear shaft (2, 19) and a second torque being present on the second gear shaft (3, 22), and the second gear shaft (3, 22) being driven one of directly and indirectly by the first gear shaft (2, 19) via at least a two gears (5, 6, 7, 8; 20, 21);

computing a value from the rotational speed of the first gear shaft (2, 19) and the rotational speed of the second gear shaft (3, 22) and storing the computed value;

comparing a current value with a value of a previous value;

deriving a change in the torque of the first gear shaft (2, 19) by a difference between the current value and the previous value;

determining the rotational speeds of the two gear shafts (2, 3; 19, 22) by rotational speed sensors (12, 13; 25, 29), which generate speed-related electrical impulses; and

determining one of a phase or angle shift (α) from measured electric impulses of the rotational speed sensors (12, 13; 25, 29) on the two gear shafts (2, 3; 19, 22), which is proportional to transmitted torque and to elasticity of torque-transmitting components of the transmission and is also a characteristic of input torque.

14. (NEW) The method according to claim 13, further comprising the step of measuring rotational speeds of one of a driving motor, a gear input shaft (2) and a rotational speed of a gear output shaft (3).

15. (NEW) The method according to claim 14, further comprising the step of determining a torque of a combustion engine.

16. (NEW) A method for determining the torque on transmission shafts, the method comprising the steps of:

cyclically measuring a rotational speed of a first gear shaft (2, 19) and a rotational speed of a second gear shaft (3, 22) in a transmission with a constant

transmission ratio, a first torque being present on the first gear shaft (2, 19) and a second torque being present on the second gear shaft (3, 22), and the second gear shaft (3, 22) being driven one of directly and indirectly by the first gear shaft (2, 19) via at least two gears (5, 6, 7, 8; 20, 21);

computing a value from the rotational speed of the first gear shaft (2, 19) and the rotational speed of the second gear shaft (3, 22) and storing the computed value;

comparing a current value with a value of a previous value;

deriving a change in the torque of the first gear shaft (2, 19) by a difference between the current value and the previous value;

determining the rotational speeds of the two gear shafts (2, 3; 19, 22) via rotational speed sensors (12, 13; 25, 29), which generate speed-related electrical impulses; and

measuring rotational speeds of two shafts (19, 22) associated with a retarder (18) and determining a braking torque of a retarder (18).

17. (NEW) The method according to claim 13, further comprising the step of using a quotient from the two rotational speeds as the value computed from the two rotational speeds.

18. (NEW) The method according to claim 13, further comprising the step of determining one of a traction and a shearing torque in the transmission.

19. (NEW) The method according to claim 13, further comprising the step of using the quotient for determining torque in one of an automatic or automated manual transmission with at least one splitter drive.

20. (NEW) The method according to claim 13, further comprising the step of using the quotient for determining torque in one of an automatic or automated manual transmission without any splitter drive.